

REMARKS

Claims 1-35 were presented for examination in the present application. The instant amendment adds new claims 36-37. Thus, claims 1-37 are presented for consideration upon entry of the instant amendment.

Claims 1, 35, and 37 are independent.

Claims 1-35 were rejected under 35 U.S.C. §112, second paragraph.

Claim 1 has been amended to obviate this rejection, namely recite that the first cooling system is "configured to transport a cooling fluid to cool the at least one electrode".

Claims 2 and 8 have been amended to conform to the amendments made to claim 1.

Claims 3 and 5 have been amended to remove the objected elements. Specifically, claim 3 has been amended to remove the "and/or controlled" element, while claim 5 has been amended to remove the "different planes" element.

Claims 6, 7, and 9 have been amended, similar to claim 3 discussed above, to remove the "and/or controlling" element.

Claim 13 has been amended to recite that the sections are coaxial to one another.

Claim 35 has been amended to recite that the cooling system is "configured to transport a cooling fluid to cool the electrode" and to remove the objected "at least one" element. Applicants submit that amended claim 35 interrelates the essential elements of the invention and, thus, points out and distinctly claims the invention in accordance

with the requirements of U.S.C. §112, second paragraph.

Applicants respectfully submit that these amendments obviate the rejections to claims 1-35. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. §112, second paragraph are respectfully requested.

Claims 1-35 were rejected under 35 U.S.C. §103 over U.K. Patent No. GB644,463 (the GB '463 patent).

Applicants respectfully traverse this assertion.

The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). See also *KSR*, 127 S.Ct. at 1734 ("While the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.")

Applicants respectfully submit that the Office Action has failed to meet its burden of establishing a *prima facie* case of obviousness with respect to any of claims 1-35 because the Office Action has failed to determine the level of skill in the art.

Presuming arguendo that the references show the elements or concepts urged by the Office Action, the Office Action has presented no line of reasoning, and we know of none, as to who one skilled in the art is or why that person viewing the collective teachings of the references would have found it obvious to selectively pick and choose various elements and/or concepts from the several references relied upon to arrive at the claimed invention. Rather, the broad conclusion set forth by the office Action supports the inescapable conclusion that the Office Action has simply modified the reference to support a rejection on the basis of mere hindsight.

Further, Applicants submit that the Office Action has failed to show that the GB '463 patent discloses each and every element of claim 1. Rather, the Office Action has merely asserted that "it seems that GB '463 teaches structural elements of the invention or at least the minor modifications to obtain the claimed invention", which is simply a legally insufficient assertion to support a finding of obviousness.

Moreover, Applicants submit that the GB '463 patent fails to disclose or suggest claims 1 or 35. Claim 1 recites, in part, a first cooling system that includes "means for controlling a cooling power variably as a function of time and location in a plurality of selectable regions of the at least one electrode". Similarly, claim 35 recites, in part, a first cooling system having "a controller that controls a cooling power variably as a function of time and location in a plurality of selectable regions of the electrode".

Applicants submit that the means of claim 1 and the controller of claim 35 that controls cooling power variably as a function of time and location in a plurality of selectable regions of the electrode are not present or suggested by the GB '463 patent.

By way of example, the electrode of the GB '463 patent lacks "a plurality of selectable regions" and thus the cooling power in these non-existent regions can not variably controlled.

In fact, the GB '463 patent merely circulates a cooling fluid between two coaxial tubes having an insulating refractory material filling the interstice between the coaxial tubes and the inner wall of the electrode body. However, no control system is disclosed by the GB '463 patent and none is suggested by the Office Action as curing this deficiency.

Furthermore, Applicants submit that the claimed combination does much more than yield predictable results. Specifically, the combination recited by claims 1 and 35

provide for variably cooling selectable regions of the electrode, which is a result that simply can not be predicted by one skilled in the art viewing the simple cooling tubes of the GB '463 patent.

Accordingly, Applicants submit that the Office Action has failed to establish a *prima facie* case of obviousness and has failed to establish or even assert that the combination recited by claims 1 and 35 do not produce new and unpredictable results. As such, Applicants submit that claims 1 and 35, as well as claims 2-34 that depend therefrom, are allowable over the cited art. Reconsideration and withdrawal of the rejection to claims 1-35 are respectfully requested.

Claims 36 and 37 have been added to point out various aspects of the present application. Claims 36 and 37 are believed to be in condition for allowance. For example, claim 36 is in condition for allowance for at least the reason that it depends from the aforementioned claim 1.

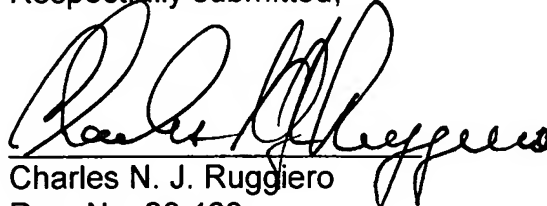
Claim 37 recites, in part, a controller configured to "control a cooling power of the first cooling system in at least some of the plurality of selectable regions variably with respect to others of the plurality of selectable regions". Applicants submit that cooling some of the selectable regions of the electrode variably with respect to others of the selectable regions is not disclosed or suggested by the GB '463 patent.

In view of the above, it is respectfully submitted that the present application is in condition for allowance. Such action is solicited.

If for any reason the Examiner feels that consultation with Applicants' attorney would be helpful in the advancement of the prosecution, the Examiner is invited to call the telephone number below.

December 9, 2008

Respectfully submitted,



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